CLAIMS

What is claimed is:

1. A propshaft assembly comprising:

a shaft structure having at least one cavity, the shaft structure vibrating in response to receipt of an input of a predetermined frequency such that a pair of second bending mode anti-nodes are generated in a spaced relation to one another along a longitudinal axis of the shaft structure; and

two non-identical inserts disposed in the shaft structure, each of the inserts being positioned at a respective one of the anti-nodes, the inserts being configured to attenuate an amplitude of vibrations at the anti-nodes.

2. The propshaft assembly of Claim 1, wherein each of the inserts is formed such that at least one of its density, mass, resilience and length is different from that of the other insert.

3. The propshaft assembly of Claim 2, wherein the inserts are similar.

4. The propshaft assembly of Claim 1, wherein at least one of the inserts is press-fit into the shaft structure.

5. The propshaft assembly of Claim 1, wherein at least one of the inserts is formed from a foam.

6. The propshaft assembly of Claim 5, wherein the foam is an open-celled foam.

7. The propshaft assembly of Claim 1, wherein the inserts are similar.

8. A method for forming a propshaft assembly comprising:

forming a shaft structure;

forming a first insert;

forming a second insert, the first and second inserts being non-identical; and

inserting the first and second inserts into the shaft structure in an axially spaced-apart relation to one another.

9. The method of Claim 8, further comprising determining a location of a first bending anti-node and a second bending node along a length of the shaft structure.

10. The method of Claim 9, wherein the first insert is located at the first bending anti-node and the second insert is located at the second bending anti-node.

11. The method of Claim 10, wherein each of the first and second inserts has a length, a mass, a density and a resilience, and wherein at least one of the length, the mass, the density and the resilience of the first insert is different than that of the second insert.

12. The method of Claim 11, wherein at least one of the first and second inserts is press-fit to the shaft structure.

13. The method of Claim 12, wherein the first and second inserts are similar.

14. The method of Claim 8, wherein the first and second inserts are similar.

15. A method for reducing vibration in a vehicle driveline comprising:

providing a shaft assembly with a shaft structure;

coupling the shaft structure to a power transmitting device, the power transmitting device including a pair of meshing gears;

transmitting rotary power between the shaft assembly and the power transmitting device, the meshing gears thereby generating gear mesh vibration that is transmitted to the shaft assembly;

determining a location of a first bending anti-node and a second bending anti-node along a length of the shaft structure;

inserting a first insert at the first bending anti-node; and

inserting a second insert at the second bending anti-node, the first and second inserts being non-identical.

16. The method of Claim 15, wherein each of the first and second inserts has a length, a mass, a density and a resilience, and wherein at least one of the length, the mass, the density and the resilience of the first insert is different than that of the second insert.

17. The method of Claim 16, wherein at least one of the first and second inserts is press-fit to the shaft structure.

18. The method of Claim 16, wherein the first and second inserts are similar.